

**NEW SOUTH WALES  
TECHNICAL AND FURTHER EDUCATION COMMISSION**

NSW Course Number: 9285

NSW Version Number: 4

MEM05 Metal and Engineering

Qualification Code: MEM30505

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**Certificate III  
in  
Engineering - Technical**

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Endorsement Date: 29-Aug-2012

Expiry Date:

**ISU MEADOWBANK  
MANUFACTURING PROGRAM AREA**

## A. General information

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### 1. Proponent

NSW TAFE Commission - Isu Meadowbank

### 2. Address

NSW TAFE Commission  
1 Oxford St, Darlinghurst NSW 2010

### 3. Contact details

TES Industry Skills Unit Meadowbank  
Level 3, Building J  
See Street  
Locked Bag 6  
Meadowbank College of TAFE  
Meadowbank NSW 2114

Telephone: (02) 9942 3200  
Fax: (02) 9942 3257

### 4. Type of submission

#### 4.1 Course submission type

Training Package Qualification

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## A. General information

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### 7. Accreditation authority

Training Package - not applicable

### 8. Classification information

ANZSCO Code:	312500	Mechanical Engineering Draftspersons and Technicians
ANZSIC Code:	0211	Cotton Ginning
	2171	Sugar Manufacturing
	2631	Cement and Lime Manufacturing
	27	Metal Product Manufacturing
	271	Iron and Steel Manufacturing
	28	Machinery and Equipment Manufacturing
	281	Motor Vehicle and Part Manufacturing
	2811	Motor Vehicle Manufacturing
	286	Industrial Machinery and Equipment Manufacturing
	2861	Agricultural Machinery Manufacturing
	2862	Mining and Construction Machinery Manufacturing
	2863	Food Processing Machinery Manufacturing
	2864	Machine Tool and Part Manufacturing
	2866	Pump and Compressor Manufacturing
	294	Other Manufacturing
Field of Education:	030701	Mechanical Engineering
NSW Course Number:	9285	Certificate III in Engineering - Technical
NSW Version Number:	4	

## B. Course information

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### 1. COURSE NAME AND QUALIFICATION

#### 1.1 Course qualification and name

Certificate III in Engineering - Technical

#### 1.2 Nominal duration: 360 hours

The nominal duration is based on the Student/Teacher contact hours. The total hours required by any student may be greater than this and may vary with the units of competency selected. It can be calculated by adding the nominal hours for all units selected, using the unit nominal hours in the Course Structure, see Section 4.1.

### 2. COURSE DEVELOPMENT

#### 2.1 Industry and market needs

The various sectors of the metal and engineering industry comprise about 50% of Australia's manufacturing industry in terms of value added share. In general, 85% of these industry sectors are comprised of small to medium enterprises. Each sector is involved in the manufacture, service, repair and maintenance of products, tooling and equipment, as well as processes.

Engineering installation, repair and maintenance is also applied across most Australian industries. This aspect of applied engineering includes significant numbers of workers. Workforce numbers counted by industry and occupational classifications alone are misleading and unreliable. As of 2006, the number of workers across Australian industries who are using engineering and manufacturing-engineering skills is approximately 650,000. The majority of these workers are not clearly identified in industry data and many are recorded as workers in other related industries.

There is a need within the industry for a qualification in the technical areas such as CAD, drafting and production scheduling, corresponding to level C9 under the Metal, Engineering and Associated Industries Award.

This need is met in the Metal and Engineering Training Package MEM05 by the Certificate III in Engineering - Technical MEM30505 and this course follows the requirements for that qualification.

#### 2.2 Review for re-accreditation

Not Applicable.

### 3. COURSE OUTCOMES

#### 3.1 Course outcomes

This course is designed for people who are employed, or seeking employment, in the Metal and Engineering industry as trainees in technical (non-trade) areas such as CAD, drafting, design, production planning & scheduling, industrial engineering and process control.

## B. Course information

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The course provides the skills and knowledge for an individual to be competent in a range of engineering fields at a Certificate III level.

Students will achieve competency in:

- \* organising and communicating information
- \* interacting with computing technology

As well, depending on choices made, students will gain knowledge and skills in elective units in such areas as:

- \* computer aided drafting (CAD)
- \* basic drafting
- \* basic engineering design
- \* workplace layout
- \* production scheduling
- \* cost estimating
- \* control circuits
- \* basic NDT (Non-Destructive Testing)

Students completing this course with the support of their employer could expect to be employed in positions at level C9 under the Metal, Engineering and Associated Industries Award.

Students who complete this course could expect to be employed as drafters, engineering assistants, production planners/schedulers and related jobs at a technician level where they support the associate and professional Engineers. Technicians should be able to work unsupervised.

### Key Alert

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On 1 January 2012 the Work Health Safety Act 2011 (WHS Act) was implemented in NSW. Delivery and assessment of this course must be based on this legislation.

Work Health and Safety (WHS) was referred to in NSW as Occupational Health and Safety (OHS) and in some countries people know it as Occupational Safety and Health (OSH). Please refer to the Work Health and Safety heading in Section B 6.1 Delivery Modes for more information.

TAFE NSW trainers and assessors must meet the requirements specified in the Standards for NVR Registered Training Organisations 2011: Part 2 SNR 4 & Part 3, SNR 15.

### 3.2 Competency standards

This course meets the requirements of the qualification MEM30505 Certificate III in Engineering - Technical from the Metal and Engineering Training Package MEM05 and is comprised of units of competency from that training package.

### 3.3 General competencies

The Certificate III Technical qualification is an entry level qualification for people undertaking 'technical work' as defined in the relevant industrial arrangements. At Certificate III it is expected that people will have some autonomy in their job role and will have developed the Key Competencies to a reasonable standard. As with the lower qualification levels, the choice of elective units of competency as well as their particular workplace application will determine the extent of their requirements and achievement of the Key Competencies. The outcomes in this Certificate III qualification will require performance at level 1 for all Key Competencies and perhaps at level 2 in some instances.

#### 1. Collecting, analysing and organising information

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## B. Course information

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This Key Competency would be required for all the Certificate III - Technical qualification in order to meet the requirements of the mandatory units of competency such as MEM16.6A. Many of the elective competencies chosen as part of the qualification will include the need for demonstration of the ability to undertake the collection, analysis and organisation of information. Note that 'information' may also include data. For example, many of the elective competencies include a requirement of organisation and planning to do the job or task, which will involve the collection of information regarding procedures, specifications, settings, hazards and the like. Performance at level 1 would be required.

### 2. Communicating ideas and information

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Communication in any workplace is an essential competency. The mandatory units of competency at Certificate III require the demonstration of adequate communication to at least performance level 1 to suit the enterprise environment. Students will need work closely with supervisors and qualified technicians and will be required to discuss specifications and technical processes sometimes to performance level 2.

### 3. Planning and organising activities

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Self planning and organising (within an overall framework) is required from all employees in a manufacturing or engineering enterprise, with performance at level 1 expected. Both mandatory units involve some planning and organising.

### 4. Working with others and in teams

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Working with others is fundamental to the way most manufacturing and engineering enterprises work. Teams may be single level work area teams, multidisciplinary, multi-level teams, permanent teams, ad hoc teams or any other combination of people may be termed a 'team'. Performance at level 1 is expected to meet the requirements of the mandatory units of competency at the Certificate III level, where working with others involves communicating information with and without .

### 5. Solving problems

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Problem solving at the Certificate III level is required. However, the extent will depend heavily on the selection of elective units of competency as well as their particular workplace application. Typical trade and production work at this level will require the ability to solve problems within the scope of the particular job role. Performance at level 1 would be required.

### 6. Using mathematical ideas and techniques

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This key competency requires performance up to level one in the Certificate III qualifications. All manufacturing and engineering enterprises will all require the use of mathematical ideas and techniques. At this qualification level there will be a need for accurate use and manipulation on numbers as well as measurement and estimation. Performance at level 2 may be required in some instances, depending on the selection of elective units of competency as well as their particular workplace application.

### 7. Using technology

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Jobs in the manufacturing and engineering industry at the Certificate III level will require some degree of interaction with technology. The extent of this interaction will depend on the selection of elective units of competency as well as their particular workplace application. Performance at level 1 will be required for the Certificate III qualifications and may need to extend to level 2 in some cases.

## B. Course information

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### 3.4 Recognition given to course

Not Applicable.

### 3.5 Licensing and regulatory requirements

Certificate III in Engineering - Technical (NSW course number 9285) aligns to NSW Vocational Training Order (VTO) 3421.

A training plan has been developed for this qualification and is available on the Department of Education and Training 'Training Plan' website - <https://detwww.det.nsw.edu.au/tpl/index.do>

This plan should be modified to suit the individual training requirements of students and their employers during the consultation process.

## 4. COURSE STRUCTURE

### 4.1 Outline of course structure

This course reflects the packaging requirements for MEM30505 Certificate III in Engineering - Technical within the Metal and Engineering Training Package (MEM05 V8.1). The rules from MEM05 V8.1 are as follows:

The minimum requirements for achievement of the Certificate III in Engineering - Technical are:

- completion of the three (3) core units of competency listed below, and
- completion of seven (7) elective units of competency from the list below to bring the total of units selected to ten (10).

Note that when selecting elective units any prerequisite units must also be completed and can be counted towards the required number of elective units (refer to units and prerequisites listing in Appendix 2).

Note also that additional requirements apply to the selection of non-destructive testing units. These additional requirements are listed below in Group 2 Subgroups 2 and 3.

Up to two (2) appropriate electives may be chosen from other endorsed Training Packages and accredited courses where those units are available in a Certificate III. Note that the elective units listed below include all of the units that are approved for selection from the MEM Training Package for use in this qualification. This meets the NQC requirement that one sixth of the total units must be able to be selected from other qualifications in the same Training Package.

The packaging rules for this qualification provide the following statement in relation to the core units: 'It is anticipated many learners will have gained these skills through Year 12 school study and be eligible for recognition of prior learning. The actual awarding of the units will be subject to assessment by the Registered Training Provider offering the qualification.'

To satisfy the Training Package requirements, this TAFE NSW course has been structured as follows:

A total of 10 units must be completed - 3 core and 7 electives

Group 1 Core Units

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This group contains the core units of competency. You must achieve all of these units.

## B. Course information

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### Group 2 Elective Units Listed in MEM30505

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This group contains the elective units listed in MEM30505 packaging rules. You must achieve seven (7) of these units.

Sub-group 1 of Group 2 contains most of the units in Group 2. There is no limit on the number of units that you can achieve from this sub-group. All seven (7) of the electives can come from this sub-group.

Sub-group 2 of Group 2 contains the following units. You can only include two (2) of the three but you may choose to ignore all of them.

- \* MEM24001B Perform basic penetrant testing
- \* MEM24003B Perform basic magnetic particle testing
- \* MEM24005B Perform basic eddy current testing

Sub-group 3 of Group 2 contains the following units. You can only include one (1) of these and, again, you may choose to ignore both of them.

- \* MEM24007B Perform ultrasonic thickness testing
- \* MEM24009B Perform basic radiographic testing

### Group 3 - Units Available at Certificate III from Other Training Packages/ Accredited Courses

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This group contains units imported from other endorsed training packages or accredited courses. Up to two appropriate electives may be chosen from other endorsed Training Packages and accredited courses where those units are available in a Certificate III.

The nominal hours shown below are the Student Hours for each unit of competency. Refer to the Unit Guide for each unit for the Student/Teacher Hours.

#### NOTES FOR STUDENTS

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##### 1. LEARNER SUPPORT

Students who require support to meet their learning goals may co-enrol in the Learner Support course (TAFE Course Number 9999). Talk to your teacher if you think you may require learner support.

##### 2. SELECTION OF ELECTIVES

Talk to your teacher and/or workplace trainer to ensure that your combination of electives provides you with a suitable vocational outcome.

##### 3. RECOGNITION

If you have completed other relevant training you may be eligible to have units of competency from previous training counted towards completion for this course. Talk to your teacher or workplace trainer if you think you may be eligible for recognition for units previously completed.

##### 4. PREREQUISITE UNITS

Some units in this course may have prerequisites that must be completed in a lower level qualification or selected as part of this course. Refer to the Training Package or consult your teacher for information about prerequisites to elective units.

#### Additional Note:

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The column headed "Seq" in the course structure below is used to ensure the units are displayed in the correct numerical sequence. This column has no relevance to the order of delivery or assessment.

### Course Elective Completion :

At least 7 elective module/units must be completed. These may be chosen from groups 2, 3



**B. Course information****Group 1 CORE UNITS**

All module/units must be completed

Module/Unit Code	National Module Code	Module/Unit Name	Nom Hrs
MEM16006A		Organise and communicate information	18
MEM16008A		Interact with computing technology	18
MSAENV272B		Participate in environmentally sustainable work practices	20

**Group 2 ELECTIVE UNITS LISTED IN MEM30505**

All subgroups must be completed

At least 5 and no more than 7 module/units must be completed

**Subgroup 1 GENERAL UNITS**

No more than 7 module/units may be completed

Module/Unit Code	Seq No	National Module Code	Module/Unit Name	Nom Hrs
MEM05051A	0		Select welding processes	18
MEM09201A	0		Work effectively in an engineering drafting workplace	20
MEM09202A	0		Produce freehand sketches	20
MEM09203A	0		Measure and sketch site information	36
MEM09205A	0		Produce electrical schematic drawings	72
MEM09208A	0		Detail fasteners and locking devices in mechanical drawings	36
MEM09209A	0		Detail bearings, seals and other componentry in mechanical drawings	36
MEM09213A	0		Produce schematic drawings for hydraulic and pneumatic fluid power systems	72
MEM12023A	0		Perform engineering measurements	45
MEM12024A	0		Perform computations	27
MEM13013B	0		Work safely with ionizing radiation	36
MEM15001B	0		Perform basic statistical quality control	18
MEM18001C	0		Use hand tools	18
MEM30005A	0		Calculate force systems within simple beam structures	72
MEM30006A	0		Calculate stresses in simple structures	36
MEM30007A	0		Select common engineering materials	36
MEM30008A	0		Apply basic economic and ergonomic concepts to evaluate engineering applications	36
MEM30009A	0		Contribute to the design of basic mechanical systems	36
MEM30031A	0		Operate computer-aided design (CAD) system to produce basic drawing elements	54
MEM30032A	0		Produce basic engineering drawings	72
MEM30033A	0		Use computer-aided design (CAD) to create and display 3-D models	36
MSATCS301A	0		Interpret architectural and engineering design specifications for structural steel detailing	40
MSATCS302A	0		Detail bolts and welds for structural steelwork connections	20
MEM09002B	1		Interpret technical drawing	36
MEM30010A	1		Set up basic hydraulic circuits	36
MEM30011A	1		Set up basic pneumatic circuits	36
MEM30012A	1		Apply mathematical techniques in a manufacturing engineering or related environment	36
MEM30013A	1		Assist in the preparation of a basic workplace layout	36
MEM30014A	1		Apply basic just in time systems to the reduction of waste	36
MEM30015A	1		Develop recommendations for basic set up time improvements	36
MEM30016A	1		Assist in the analysis of a supply chain	36
MEM30017A	1		Use basic preventative maintenance techniques and tools	36
MEM30018A	1		Undertake basic process planning	36
MEM30019A	1		Use resource planning software systems in manufacturing	36
MEM30020A	1		Develop and manage a plan for a simple manufacturing related project	36
MEM30021A	1		Prepare a simple production schedule	36

## B. Course information

Module/Unit Code	Seq No	National Module Code	Module/Unit Name	Nom Hrs
MEM30022A	1		Undertake supervised procurement activities	36
MEM30023A	1		Prepare a simple cost estimate for a manufactured product	36
MEM30024A	1		Participate in quality assurance techniques	36
MEM30025A	1		Analyse a simple electrical system circuit	36
MEM30026A	1		Select and test components for simple electronic switching and timing circuits	36
MEM30027A	1		Prepare basic programs for programmable logic controllers	36
MEM30028A	1		Assist in sales of technical products/systems	36

### Subgroup 2 BASIC NDT SURFACE TECHNIQUES UNITS

No more than 2 module/units may be completed

Module/Unit Code	Seq No	National Module Code	Module/Unit Name	Nom Hrs
MEM24001B	0		Perform basic penetrant testing	18
MEM24003B	0		Perform basic magnetic particle testing	18
MEM24005B	1		Perform basic eddy current testing	18

### Subgroup 3 BASIC NDT DEPTH TECHNIQUES UNITS

No more than 1 module/unit may be completed

Module/Unit Code	National Module Code	Module/Unit Name	Nom Hrs
MEM24007B		Perform ultrasonic thickness testing	18
MEM24009B		Perform basic radiographic testing	18

### Group 3 UNITS AVAILABLE AT CERT III FROM OTHER TP/ACCREDITED COURSE

No more than 2 module/units may be completed

Module/Unit Code	National Module Code	Module/Unit Name	Nom Hrs
MSAPMOHS200A		Work safely	30
MSAPMSUP100A		Apply workplace procedures	10

## 4.2 Requirements to receive the qualification

To achieve MEM30505 Certificate III in Engineering - Technical (TAFE NSW course 9285), learners are required to complete ten (10) units of competency, comprising:

- 3 core units from Group 1
- 7 elective units from Group 2

NB: You can only include a maximum of two (2) units from Group 2 Sub-group 2, and/or a maximum of one (1) unit from Group 2 Sub-group 3.

## 4.3 Exit points

## B. Course information

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### 4.4 On-job requirements

On-the-job requirements for this qualification will depend on the delivery and assessment strategies negotiated during the development of the student's Training Plan. While students will achieve most units of competency through a combination of on and off-the-job training it is possible that some units can be achieved entirely on-the-job or entirely off-the-job.

For units achieved through a combination of on and off-the-job training the workplace will be required to provide the student with practice and experience to support each unit of competency.

Where units are to be achieved entirely in the workplace a learning and assessment plan should be developed between the Registered Training Organisation (RTO) and the employer. Strategies such as utilising a workplace mentor should be considered.

Depending on the nature of the workplace and the units being assessed, assessment may also be conducted off-the-job, on-the-job or a combination which best suits the student, employer and the RTO.

It may be necessary, but not compulsory, for the RTO to collect evidence from the employer to support assessment decisions. A range of tools is available including paper-based logbooks and on-line systems. However, these tools are not mandatory and RTO's may devise an alternative method that might better suit their clients.

Note: Assessment tools and strategies should address the guidelines established in the Training Package and the Australian Quality Training Framework (AQTF) standards for RTO's.

### 4.5 Customisation

This course is designed to meet the needs of different industry specific groups. Customisation of the course to accommodate specific enterprise needs is permissible within the MEM05 National Training Package customisation guidelines.

The units of competency are designed to provide flexibility with scope for enterprises to apply local procedures, processes and, in particular, operating requirements to achieve the overall unit outcome.

### 4.6 Entry requirements

There are no entry requirements for this course. However, it is recommended that applicants are already employed, or seeking employment, in the Metal and Engineering industry.

PLEASE NOTE

Entry requirements are the minimum qualifications, attributes, skills and /or experience that students must have to enter a course.

Selection criteria should be applied if demand exceeds the supply of places.

### 4.7 Recognition of prior learning

Students undertaking this Certificate III in Engineering - Technical are

## B. Course information

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entitled to have their current competencies assessed against the units of competency, and will be recognised regardless of how or where they were achieved.

For recognition to be granted the applicant must provide current "quality" evidence of their competency against the relevant unit(s) of competency.

The evidence presented may take a variety of forms such as observation of workplace performance, skills application, oral and/or written assessment.

In judging evidence, the assessor must ensure the evidence of prior learning is:

- authentic (the candidate's own work)
- valid (directly relevant to the current version of the relevant endorsed unit of competency)
- reliable (shows that the candidate consistently meets the endorsed unit of competency)
- current (reflects the candidate's current capacity to perform the aspect of the work covered by the endorsed unit of competency), and
- sufficient (covers the full range of elements in the relevant unit of competency and addresses the four dimensions of competency, namely task skills, task management skills, contingency management skills and job/role environment skills).

The recognition of prior learning (RPL) requirements of the Standards for Registered Training Organisations must be met.

## 5. ASSESSMENT

### 5.1 Assessment strategy

The Assessment Guidelines in the Metal and Engineering Training Package MEM05 provide the endorsed framework for assessment of units of competency. They are designed to ensure assessment is consistent with the Australian Quality Training Framework (AQTF) Standards for Registered Training Organisations. Assessment against units of competency in this training package must be carried out in accordance with these Assessment Guidelines.

Assessment is the process of collecting evidence and making judgements about whether competency has been achieved to confirm whether an individual can perform to the standards expected in the workplace, as expressed in the relevant unit of competency.

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#### AQTF ASSESSMENT REQUIREMENTS

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Assessment leading to nationally recognised Australian Qualifications Framework (AQF) qualifications and Statements of Attainment in the vocational education and training sector must meet the requirements of the AQTF as expressed in the Standards for Registered Training Organisations (RTO's).

The Standards for RTO's can be downloaded from the DEST website at [http://www.dest.gov.au/sectors/training\\_skills/policy\\_issues\\_reviews/key\\_issues/nts/](http://www.dest.gov.au/sectors/training_skills/policy_issues_reviews/key_issues/nts/) or can be obtained in hard copy from DEST.

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#### PATHWAYS

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The competencies in this Training Package may be attained in a number of ways including through:

- formal or informal education and training
- experiences in the workplace

## B. Course information

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- general life experience and/or
- any combination of the above.

Each of these assessment pathways leads to full recognition of competencies held.

The critical issue is that the candidate is competent, not how the competency was acquired.

### Learning and Assessment Pathways

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Usually, learning and assessment are integrated, with assessment evidence being collected and feedback provided to the candidate at anytime throughout the learning and assessment process.

Learning and assessment pathways may include structured programs in a variety of contexts using a range of strategies to meet different student needs. Structured learning and assessment programs could be: group-based, work-based, project-based, self-paced, action learning-based and/or involve practice and experience in the workplace.

Learning and assessment pathways to suit New Apprenticeships have a mix of formal structured training and structured workplace experience, with formative assessment activities, through which candidates can acquire and demonstrate skills and knowledge from the relevant units of competency.

### Assessment-Only or Recognition of Prior Learning Pathway

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Competencies already held by individuals can be formally assessed against the units of competency in this course, and should be recognised regardless of how, when or where they were achieved.

Note: Currency is of essence and will be at the discretion of the assessor.

In an assessment-only or Recognition of Prior Learning (RPL) pathway, the candidate provides current, "quality" evidence of their competency against the relevant unit of competency. This process may be directed by the candidate and verified by the assessor, such as in the compilation of portfolios; or directed by the assessor, such as through observation of workplace performance and skills application, oral and/or written assessment. Where the outcomes of this process indicate that the candidate is competent, structured training is not required. The RPL requirements of the Standards for Registered Training Organisations must be met.

The assessment only or Recognition of Prior Learning (RPL) pathway is likely to be most appropriate in the following scenarios:

1. candidates enrolling in qualifications who want recognition for prior learning or current competencies
2. existing workers
3. individuals with overseas qualifications
4. recent migrants with established work histories
5. people returning to the workplace
6. people with disabilities or injuries requiring a change in career.

### Combination of Pathways

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Where candidates for assessment have gained competencies through work and life experience, and gaps in their competence are identified, or where they require training in new areas, a combination of pathways may be appropriate.

In such situations, the candidate may undertake an initial assessment to determine their current competency. Once current competency is identified, a structured learning and assessment program ensures that the candidate acquires the required additional competencies identified as gaps.

### DESIGNING ASSESSMENT TOOLS

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## B. Course information

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This section provides an overview on the use and development of assessment tools.

### Use of Assessment Tools

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Assessment tools provide a means of collecting the evidence that assessors use in making judgements about whether candidates have achieved competency.

There is no set format or process for the design, production or development of assessment tools. Assessors may use prepared assessment tools, such as those specifically developed to support this Training Package, or they may develop their own.

### Using Prepared Assessment Tools

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If using prepared assessment tools, assessors should ensure they are benchmarked, or mapped, against the current version of the relevant unit of competency. This can be done by checking that the materials are listed on the National Training Information Service (<http://www.ntis.gov.au>). Materials on the list have been noted by the National Training Quality Council as meeting their quality criteria for Training Package support materials.

### Developing Assessment Tools

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When developing their own assessment tools, assessors must ensure that the tools:

- are benchmarked against the relevant unit or units of competency
- are reviewed as part of the validation of assessment strategies as required under the Standards for Registered Training Organisations and
- meet the assessment requirements expressed in the Standards for Registered Training Organisations.

### Assessment Validation

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The Australian Quality Training Framework (AQTF) requires an RTO to validate its assessment strategies at least on an annual basis.

This validation can be done by bringing together assessors from within TAFE NSW and the workplace to evaluate assessment tools, processes and the evidence collected. Meetings should involve assessors exchanging and discussing evidence collected and judgements made on the achievement of units of competency. Discussions should be supported by comments from industry on the performance of students (i.e. students who are deemed to have achieved units of competency are able to perform in the workplace to the standards detailed in the units of competency).

Minutes should be kept along with any recommendations for improving the assessment process. Measures to improve assessment need to be documented.

ALL DOCUMENTATION RELATING TO THE PROCESS OF VALIDATION AND IMPROVEMENT (INCLUDING MINUTES) SHOULD BE HELD IN A LOCATION AT EACH CENTRE THAT IS EASILY ACCESSIBLE FOR AUDITING PURPOSES.

### CONDUCTING ASSESSMENT

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#### Mandatory Assessment Requirements

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Assessments must meet the criteria set out in Standard 8 of AQTF. For more information, go to:

<http://antapubs.dest.gov.au/publications/publication.asp?qsID=726>

#### Advice on using simulation

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Simulations may be used for assessment where it is impractical to assess a

## B. Course information

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candidate whilst they are in productive work. The scope of the assessment may be for the entire unit of competency or some aspects of competence.

It is important that the simulated environment reflects realistic workplace situations. This means a simulation must be capable of covering a range of variables and different contexts to ensure that sufficient valid and reliable evidence of performance can be gathered. Using simulation should be viewed as equivalent to assessment in the workplace. Careful thought and preparation must be made so that the simulation complies with all requirements for gathering evidence and making assessment judgements.

### Advice on integrated assessment

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The Metal and Engineering Training Package MEM05 comprises units of competency that will rarely be used in isolation. All units in a Training Plan should form part of a person's job role. It is intended that no single unit of competency can be acquired in isolation and therefore opportunities for integrated learning and assessment activities should always be explored. Careful consideration of the profile of competencies will identify groups of units where integrated assessment (or co-assessment) can be applied.

Adoption of integrated assessment can provide significant savings in time, cost and effort of assessors and candidates. Assessment tools should be designed so that assessment evidence can be gathered for a group of units and the outcomes identified with those units. This approach can be quite adequately used to also deal with prerequisites.

### Discrimination in Assessment

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The Commonwealth Disability Discrimination Act (1992) makes it unlawful to treat people with a disability less fairly than people without a disability. In the context of this course, the principle of Reasonable Accommodation (Adjustment) is applied to ensure that participants with a disability have equitable access to all aspects of the learning situation.

Examples of reasonable accommodation (adjustment) in assessment include:

- . substitution of an oral assessment task for a written one
- . provision of extra time
- . use of an interpreter
- . use of adaptive technology.

Although assessment will vary from unit to unit, the assessment methods for this course are:

- . practical exercises or on-the-job work experiences and/or
- . practical assignments that focus on the individual's performance of the process but also on the final product

And

- . oral and written assignments that focus on judging the student's ability to make decisions in a range of manufacturing contexts.

## 6. DELIVERY OF COURSE

### 6.1 Delivery modes

The following methods of delivery are suitable for this course:

- . workplace delivery
- . Institution based practical and theory delivery
- . blended delivery

Each delivery mode should include a range of guided and supervised opportunities for the student to:

## B. Course information

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- acquire and practise technical skills
- assimilate underpinning knowledge
- communicate effectively

The following advice is offered for each of the above identified delivery modes.

### Workplace delivery

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At least 3 workplace delivery scenarios are anticipated:

- assessment only where evidence must be gathered sufficient to satisfy the requirements of all elements of each unit selected.
- skills and knowledge development for a single organisation. There is an expectation, expressed in the training package, that units will be integrated for learning and assessment purposes in such a way that learning and assessment reflects the organisation's process, product and service functions.
- skills and knowledge development for a student cohort from several organisations. There is an expectation, expressed in the training package, that units will be integrated for learning and assessment purposes in such a way that learning and assessment reflects the functions of at least one of the group of organisations.

### Institution based practical and theory delivery

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It is expected by the training package developers, that selected units will be integrated for learning and assessment purposes and that learning and assessment reflects current process, product and service functions of actual organisations.

From an educational perspective, it is highly recommended that the units delivered be integrated in such a manner that they complement the overall outcomes of this technical qualification.

PLEASE NOTE: If you are delivering units of competence you must ensure sufficient evidence is gathered for each element and performance criterion. Advice regarding sufficiency of evidence is contained in the individual competency unit guide. This information can be obtained from CIDO.

### Blended delivery

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Learning and assessment processes will be as flexible as possible to allow for limited candidate numbers, disparate work and domestic circumstances. Remote access, web access, networking, group working and appropriate institutional support sessions are encouraged. Continual development and regular validation of resources and techniques is an AQTF requirement designed to ensure effectiveness of delivery.

### Reasonable Adjustment

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This course should be adjusted to incorporate the principles of reasonable adjustment in accordance with the requirements of the Commonwealth Disability Discrimination Act (1992).

Reasonable adjustment may need to be made to delivery methods for students with disabilities. Adjustments to delivery may include:

- assistance with reading (eg explicitly teaching procedures)
- adjusting content for the target group
- adjusting teaching sequence
- providing extra practice/time to acquire skills
- providing extra demonstrations and explanations of skills and tasks
- using adaptive technology



## B. Course information

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- providing customised learning materials (eg with pictorial cue)
- providing specialist tutorial assistance
- professional development for teachers

WORK, HEALTH AND SAFETY (WHS) act and regulations  
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TAFE NSW is committed to providing and maintaining a safe and harmonious working environment for its employees and students. To ensure that everyone associated with learning in this course commits to maintaining safe environment it is mandatory that everyone complies with the Work, Health and Safety (WHS) act and regulations.

The Work, Health and Safety Act 2011 (WHS Act) and WHS Regulations are enforced throughout all Australian States and Territories. This legislation is aimed at providing consistency, certainty and clarity across Australia making it easy to understand workplace health and safety responsibilities.

Consequently this act and its regulations require employers, employees, contractors and visitors on a worksite to take every reasonable step to work safely and responsibly in the workplace.

There are no "short cuts" to working safely, it's everyone's responsibility to eliminate and minimise potential risks in the workplace, report faulty equipment, unsafe environments and comply with WHS policies and procedures. Detailed information relating to the WHS Act and regulations can be found on:

WorkCover Authority of NSW [www.workcover.nsw.gov.au](http://www.workcover.nsw.gov.au)  
Safe Work Australia [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au)

## 6.2 Resources

Standards for NVR Registered Training Organisations 2011 at <http://www.comlaw.gov.au/Details/F2011L01356> state that:

A registered training organisation (RTO) must ensure it complies with the conditions described within the Standards for NVR Registered Training Organisations 2011.

In particular:

SNR 15 The NVR registered training organisation provides quality training and assessment across all of its operations, as follows:

- 15.1 The NVR registered training organisation collects, analyses, and acts on relevant data for continuous improvement of training and assessment.
- 15.2 Strategies for training and assessment meet the requirements of the relevant Training Package or VET accredited course and have been developed through effective consultation with industry.
- 15.3 Staff, facilities, equipment and training and assessment materials used by the NVR registered training organisation are consistent with the requirements of the Training Package or VET accredited course and the NVR registered training organisation's own training and assessment strategies and are developed through effective consultation with industry.
- 15.4 Training and assessment is delivered by trainers and assessors who:
  - (a) have the necessary training and assessment competencies as determined by the National Quality Council or its successors; and
  - (b) have the relevant vocational competencies at least to the level being delivered or assessed; and
  - (c) can demonstrate current industry skills directly relevant to the training/assessment being undertaken; and
  - (d) continue to develop their vocational education and training (VET) knowledge and skills as well as their industry currency and trainer/assessor competence.

## B. Course information

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### 15.5 Assessment including Recognition of Prior Learning (RPL):

- (a) meets the requirements of the relevant Training Package or VET accredited course; and
- (b) is conducted in accordance with the principles of assessment and the rules of evidence; and
- (c) meets workplace and, where relevant, regulatory requirements; and
- (d) is systematically validated.

### Essential teacher qualifications

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TAFE NSW trainers and assessors must meet the requirements specified in the Standards for NVR Registered Training organisations 2011: Part 3, SNR 15.

To deliver and conduct assessments in the units in this course, teachers must satisfy AQTF and TAFE NSW requirements. (See note at the end of this section for the TAFE NSW requirements).

Teachers must have a combination of:

- vocational qualifications, to ensure knowledge of the occupation or vocation in which training is provided
- industry or related experience, to ensure currency and relevance of the vocational program to the student, industry or community.
- educational qualifications, to ensure competence in educational delivery and in competency based assessment

### Vocational Qualifications

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Teachers must be able to demonstrate current vocational competence. Usually this requires completion of a relevant degree, diploma or other vocational qualification.

The vocational qualification must be at least at the AQF level of the units of competency being delivered and/or assessed, or an equivalent qualification that will provide the knowledge and skills to deliver and assess the unit.

As a guide, appropriate vocational qualifications include:

- \* Certificate III in Engineering - Technical
- \* Diploma of Engineering - Technical
- \* Advanced Diploma of Engineering - Technical
- \* Other relevant technical qualifications that will provide a teacher with skills and knowledge to deliver and conduct assessment in this course.

### Relevant Experience

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Teachers must be able to demonstrate a broad perspective and depth of understanding of the vocational area based on current and relevant experience in the industry. Usually this will be a minimum of three years experience gained no longer than five years previously.

### Educational Qualifications

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As a minimum all TAFE NSW teachers must meet the qualification requirements detailed in the AQTF Standard 1, 2007 or equivalent.

### TAFE NSW Requirements

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RTO's may require qualifications in addition to those specified in the AQTF, to enhance the quality of their delivery and assessment practice. For example, TAFE NSW may specify a degree or diploma in an educational or vocational area.

Teachers should have current knowledge and awareness of access and equity issues relevant to learners needs arising from a variety of factors including socio-economic status, disability status, ethnic background, race, family differences, sexual preferences and gender specific differences.

## B. Course information

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For specific qualifications and other requirements for appointment of teaching staff, consult your Staff Services Unit for relevant Teacher Designation requirements.

### Specialised Facilities and Equipment

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In general students could require access to a suitably equipped engineering facility which conforms with relevant Occupational Health and Safety regulations. The equipment required will depend on the units of competency undertaken.

For specific information, please consult the unit guide which can be downloaded from CIDO.

## 7. ARTICULATION AND CREDIT TRANSFER

### 7.1 Articulation and credit transfer

This course represents a qualification under the Metal and Engineering Training Package MEM05. Also included in the training package are the following qualifications:

National Code	Title	NSW Course No.
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MEM50205	Diploma of Engineering - Technical	9156
MEM60105	Advanced Diploma of Engineering	9160

Students who complete 9285 Certificate III in Engineering - Technical can apply to enrol in the above courses and gain full credit for any relevant units achieved, provided they meet all course entry requirements.

### 7.2 Training, education and career pathways

Students may enter this course directly. They would normally be expected to be in, or seeking, relevant employment. They may proceed to higher level qualifications within this training package as explained in Section 7.1.

If students have undertaken this qualification with the support of their employer it would be expected they would be employed in positions at AQF III (level C9 in the Metal, Engineering and Associated Industries Award) in the workplace.

## 8. ONGOING MONITORING AND EVALUATION

Curriculum maintenance involves the review, monitoring and evaluation of a course, to evaluate its effectiveness and to advise on the continuing needs and requirements of industry and the community with specific consideration of changing technologies.

It is the role of Manufacturing Skills Australia (MSA) to evaluate the effectiveness and continuing need and demand for the qualifications and units of competency in the training package and to make such changes to the training package as required.

TES Industry Skills Unit Meadowbank will monitor and evaluate the implementation of the training package, and the qualifications included in it, within TAFE NSW.

TES Industry Skills Unit Meadowbank will collect information from a range of stakeholders including Institute management, teachers, students, graduates, employers, industry and community agencies, relevant industry skills councils

## B. Course information

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and industry support organisations on:

- general relevance of the program to intended vocational outcomes
- specific strengths of the course
- sections of the course that need to be reviewed or strengthened
- suggestions for improvement
- appropriateness of entry requirements and selection criteria
- appropriateness of assessment strategies
- need to address current industry developments and new technologies
- monitoring changes to the training package where relevant.

## C. TAFE NSW implementation requirements

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### 1. TAFE NSW course(s) replaced by this course

Course qualification and name: Certificate III in Engineering - Technician  
 Course number: 300  
 Duration: 360 hours  
 Approval Date: 28-May-2003  
 Expiry Date:

Course qualification and name: Certificate III in Engineering - Technician  
 Course number: 6899  
 Duration: 972 hours  
 Approval Date: 05-Dec-2002  
 Expiry Date:

### 2. Handbook description

This course is for people entering the metal and engineering industry in technical (non-trade) occupations such as CAD drafter, production scheduler, engineering assistant or similar roles.

You will gain compulsory competencies in organising and analysing information and in interacting with computing technology. You will also gain a range of elective competencies in areas relevant to your current or intended employment such as CAD, drafting, quality assurance, basic fluid power, basic mechanical design, production scheduling, cost estimating and basic non-destructive testing.

The course duration will vary depending on the training pathway agreed to between you, your employer and the TAFE college.

#### CAREER OPPORTUNITY:

Engineering Technician at level C9 under the Metal, Engineering and Associated Industries Award.

#### ARTICULATION:

When you finish this course you may be eligible to enrol in other courses at Diploma and Advanced Diploma level in the Metal and Engineering Training Package.

#### ENTRY REQUIREMENTS

There are no entry requirements for this course. However, it is recommended that applicants are already employed, or seeking employment, in the Metal and Engineering industry.

### 3. Student selection

SELECTION CRITERIA: Your application will be assessed using the following selection criteria (in priority order):

1. Applicants employed as trainees to study the Certificate III in Engineering - Technical.
2. Applicants having written evidence of appropriate employment being offered in the immediate future and who are seeking a qualification at Certificate III level.
3. Other applicants

SELECTION METHOD: Your selection into this course will be based on the information provided on the TAFE NSW Application Form.

PLEASE NOTE

## **C. TAFE NSW implementation requirements**

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Selection criteria are considerations which are applied where demand for a course exceeds available places. All students must meet entry requirements to be eligible for entry in a course BEFORE selection criteria are applied (see Section B, Course information, 4.6 Entry requirements).

Selection methods are the tools used to evaluate students against the selection criteria.

### **4. Procedures for student selection**

## C. TAFE NSW implementation requirements

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### 5. Course grading

This qualification is ungraded

### 6. NSW recognition of prior learning

TAFE equivalences and standard exemptions for particular units are shown in the appropriate Unit Guides.

TAFE Advanced Standing Arrangements and/or Standard Exemptions which have been created in respect of units/ modules in this course are shown in Part B of the syllabus of each unit/ module. The unit/ module syllabus also provides information about appropriate evidence for assessing recognition applications.

### 7. Employer report

Some TAFE NSW courses are specified in training agreements as providing for students who have signed indentures or contracts of training (e.g. apprentices and trainees). Employers of such students enrolled in these courses will receive an employer's report at the end of each semester.

### 8. Minimum essential course resources

For details of teaching and learning resources and major texts and references refer to each unit/module.

#### 8.1. Physical resources comments

Equipment costs in delivering this course will depend on the Unit Guide selected. Refer to the appropriate Unit Guides.

#### 8.2. Human resources comments

The teacher qualifications stated in Part B: 6.2.1 Human Resources are a guide to the minimum qualifications required by all teachers to deliver and conduct assessments in this course.

For qualifications required to deliver and conduct assessments in individual unit/ modules in this course, consult individual unit/ module syllabuses.

For specific qualifications and other requirements for appointment of full-time teaching staff, consult the relevant Teacher Designation requirements on LATTICE, through your Staff Services Unit.

Human resource requirements will depend on the competency units selected by the employer, employee and RT0.

### 9. Additional information

Tutorial hours in basic literacy, numeracy or other areas of general educational difficulty are available. Tutorial hours are also available for course-specific technical tutorial assistance.